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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,883	08/21/2003	Dae-Sik Kim	1293.1957	6836

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EXAMINER	
SEVER, ANDREW T	

ART UNIT	PAPER NUMBER
2851	

DATE MAILED: 12/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EV

Office Action Summary	Application No.	Applicant(s)	
	10/644,883	KIM ET AL.	
	Examiner	Art Unit	
	Andrew T. Sever	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ~~X~~ 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 8-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 8-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 September 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 6, 9, 12-20, 22-31, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parker et al. (US 6,224,216) in view of Lambert (US 6,288,815 as previously provided to applicant).

Parker teaches in figures 2 and 8 a projection system comprising:

Light emitting units (light sources which in figure 8 are LEDs of various colors) emitting light beams of different wavelengths;

Optical fibers disposed between the light emitting units and a collimating lens (42) to respectively transmit the light beams (see figure 8 which shows the optical fibers labeled light pipes in figure 2)

A light valve (44) which receives the color beams and forms a color image by turning pixels on or off according to an input image signal.

Parker does not teach a scrolling unit having spirally arranged cylinder lens cells which scrolls the color beams when the scrolling unit is rotated. Such a scrolling unit is taught by Lambert in figure 7B, where Lambert teaches a cylindrical lens structure, which is spirally disposed (see column 11 lines 12-14). Although Lambert teaches only a single spiral lens in figure 7B in an alternative taught in lines 22-26 (not shown), Lambert teaches a plurality of lens arrays (spiral lens cells) arranged on a single shaft. Lambert teaches in column 1 liens 25-40 that using a non-scanning system such as Parker's does not efficiently use the light valve and results in lower resolution as compared to a scanning system such as Lambert's. Lambert further teaches in column 5 lines 51 through column 6 line 29 that by providing a scrolling unit (scanning element) that has

optical power, optical errors caused by the scanning function and by other parts of the projection device can be corrected producing a better image with higher resolution. Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to using a scrolling unit as taught by Lambert in the projection system of Parker to allow for more efficient use of the single modulator and potentially higher resolution images to be projected.

With regards to applicant's claim 6:

Lens 42 of Parker is a collimating lens.

With regards to applicant's claim 9:

The light emitting units are LEDs (see abstract of Parker for example).

With regards to applicant's claim 12-14:

Lambert as described above teaches 2 cylindrical lens cells and in light of other embodiments such as figure 7c it would be obvious for it to include three or more cells since the other embodiments teach more then 2 cells to allow for efficient functioning and for each color light to be effectively scrolled (Since Parker specifies three colors, there would need be at least 3 lens cells.)

With regards to applicant's claims 15-18:

As described by Lambert, the scrolling unit rotates at a constant speed in a direction and one of ordinary skill in the art would recognize that there is a direct relationship between that speed and the number of units (Lambert describes one such situation in column 11 lines 13-29.)

With regards to applicant's claim 19:

The scrolling unit is a single optical element.

With regards to applicant's claim 20:

The colors of Parker are red, green, and blue (see figure 8)

With regard to applicant's claims 22-25:

See above, wherein the method of projecting an image using the projection system of Parker in view of Lambert is obvious. (See MPEP 2112.02) With regards to claims 23-25, Parker utilizes a collimating lens and light pipe integrator to achieve the proper width of the light which would be present prior to the scrolling unit in the projection system of Parker in view of Lambert.

With regards to applicant's claim 26:

The method of Lambert described with regards to the projection system above of Parker in view of Lambert, is an equivalent alternative to linearly traveling optical element scrolling system (see figure 5 of Lambert for example) in the way it scrolls the light (although as described above it includes discontinuities) and accordingly the system described above by Lambert would be equivalent.

With regards to applicant's claims 27-30 and 34:

See above.

With regards to applicant's claim 31:

*T*the LEDs of Parker are a plurality of light emitters each emitting a light beam of a wavelength corresponding to a different color then at least one other LED in the array and are disposed at the light emitting end of a light path (prior to the optical fibers.)

4. Claims 2-5, 8, 10, 11, 21, 32, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parker in view of Lambert as applied to claims 1, 6, 9, 12-20, 22-31, and 34 above, and further in view of Kruschwitz et al. (US 6,594,090 as previously provided to the applicant).

As described in more detail above Parker in view of Lambert teaches a projection system and corresponding method of using it that includes among other things a scrolling unit and a light valve. Parker in view of Lambert does not teach first and second fly-eye

lenses, which receive the color beam transmitted by the scrolling unit, diverge the color beams, and transmit the color beams to the light valve. Kruschwitz teaches in figure 2 fly-eye lenses 42a and 42b. Kruschwitz teaches that the fly-eye lenses are provided after a scrolling unit for purposes to provide efficient, uniform illumination over the area of the light valve (see column 4 line 65 through column 5 line 15.) Accordingly since this is also the goal of Lambert (to provide efficient uniform illumination), it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Kruschwitz's fly-eye lenses in the projection system and corresponding method of Parker in view of Lambert.

With regards to applicant's claim 3:

Kruschwitz teaches in column 5 relay lenses that are present but not labeled in Kruschwitz's drawings. Kruschwitz teaches that these are necessary to overlap the light exiting the fly-eye lenses and to give the light beams a rectangular area for illuminating the liquid crystal light valve (or other type of light valve), since light valves are generally rectangular in shape (including their pixels) it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the relay lenses of Kruschwitz in the projection system and method of Parker in view of Lambert.

With regards to applicant's claim 4:

Parker teaches that the light units are LEDs (See abstract) Kruschwitz teaches in column 1 line 19-27 that lasers are also advantageous in projection systems.

With regards to applicant's claims 5 and 8:

See the above 35 USC § 103 rejection based on Parker in view of Lambert with regards to applicant's claim 30.

With regards to applicant' s claims 10 and 11:

See column 5 lines 1-40 of Kruschwitz.

With regards to applicant's claim 21:

See the with regards to applicant's claim 3.

With regards to applicant's claims 32 and 33:

See immediately above and the 35 USC § 103 rejection based on Parker in view of Lambert above.

Response to Arguments

5. Applicant's arguments with respect to claim1-6 and 8-34 have been considered but are moot in view of the new ground(s) of rejection.

The Hatakeyama reference has been replaced with the Parker reference, which better teaches the optical fibers. With regards to applicant's specific arguments regarding the Lambert reference; applicant argues that the Lambert reference does not provide a teaching of the claimed scrolling unit, because the Lambert scrolling unit does not itself separate the light beam into the three component colors. While this is true, applicant has not disclosed or claimed a scrolling unit that does so; rather applicant's scrolling unit only takes a incident light beam and separates it into a plurality of color beams. Applicant's language does not eliminate the possibility of the light beam themselves being monochromatic and no support for such claim language noted in applicant's drawings or specification, wherein applicant specifically states on paragraph 25 that an optical separator for separating the light by wavelength is not necessary in applicant's invention as the light units themselves emit monochromatic light. This is the same as taught by the Parker reference. Accordingly since the Lambert teaches a scrolling unit that performs the function claimed by the applicant, it has been applied in the Parker in view of Lambert rejection. With regards to the Kruschwitz reference, the specific function that applicant argues is not taught by Kruschwitz is taught by the primary

reference of Parker et al. Accordingly applicant's arguments are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 2001/0048801 to Saccomanno, which teaches in figure 3 a projector which uses optical fibers to transmit light from a white light source to a separator and then modulators.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Sever whose telephone number is 571-272-2128. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AS

William Perkey
Primary Examiner